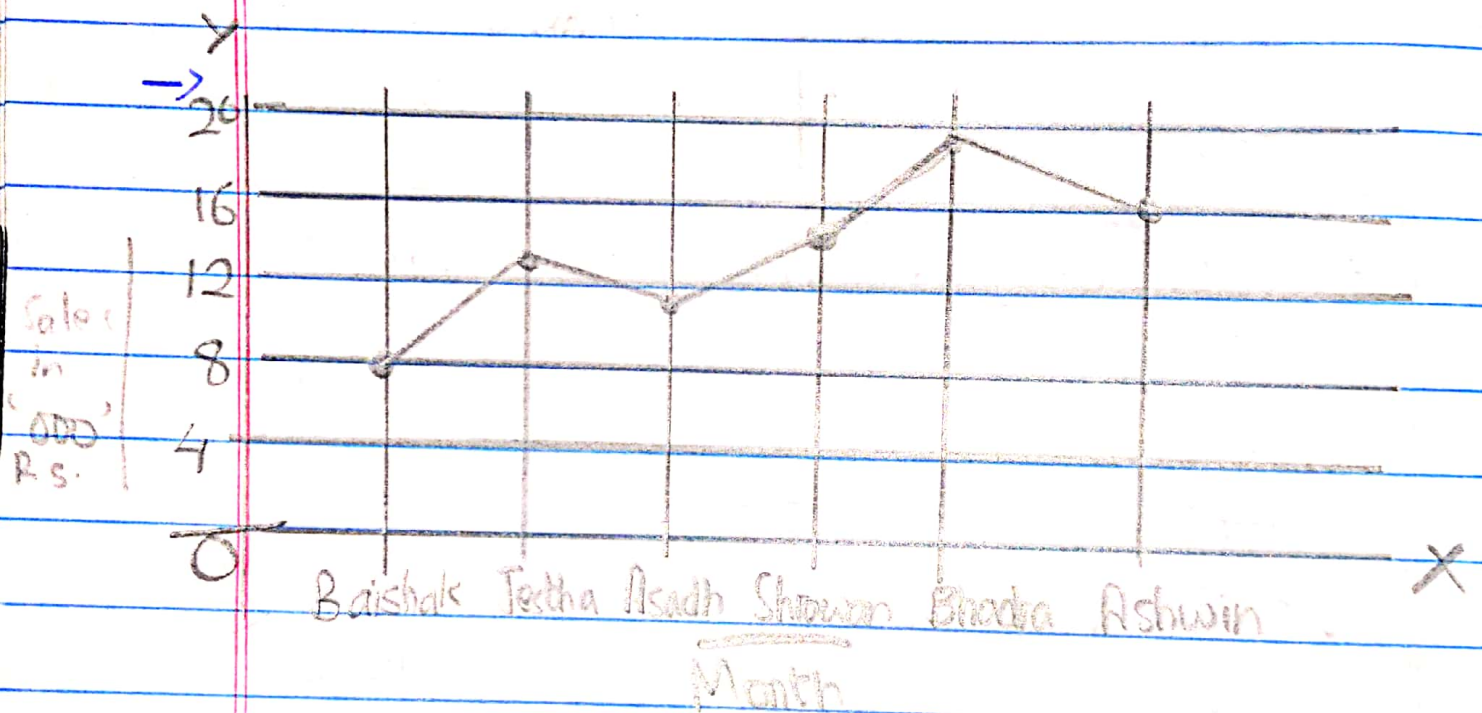


Ex-21CII)

1. a) The monthly sales of commodities are given below:

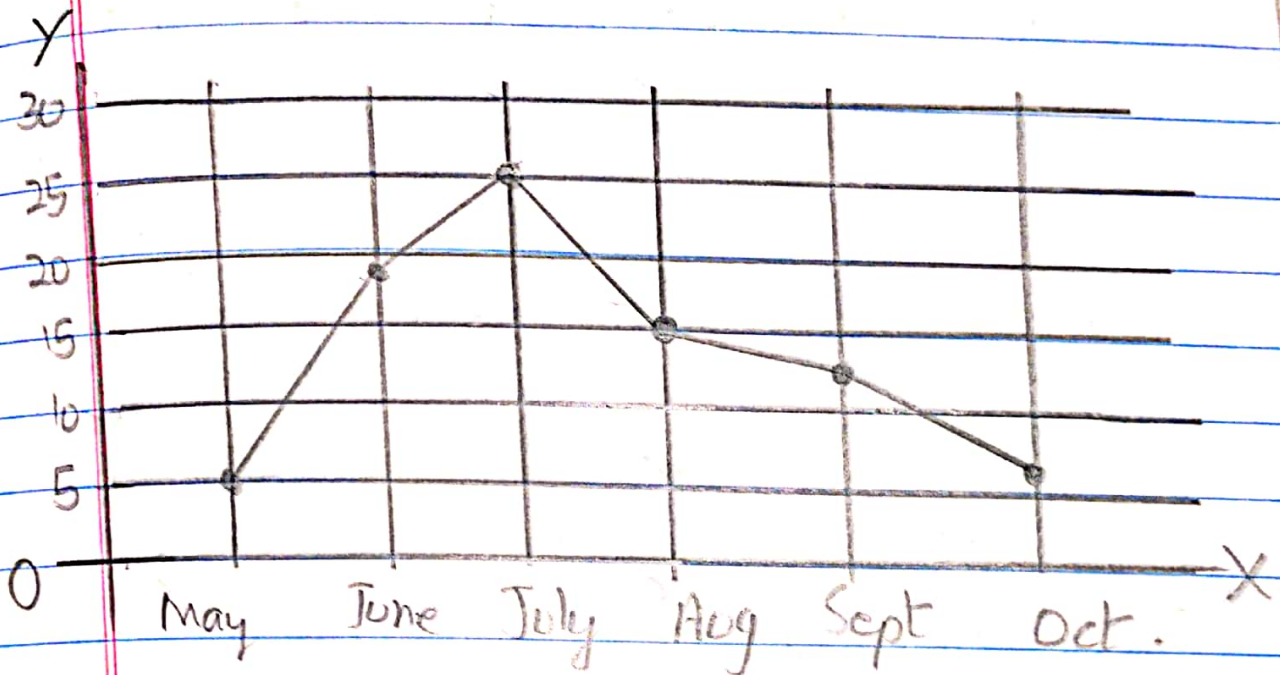
Month:	Baishak	Jestha	Asadh	Shrawan
Sales in ('000' Rs.):	8	13	11	14
	Bhadra	Ashwin		
	19	16		



1 b) The average rainfall of first six months of a year are presented in the following table:

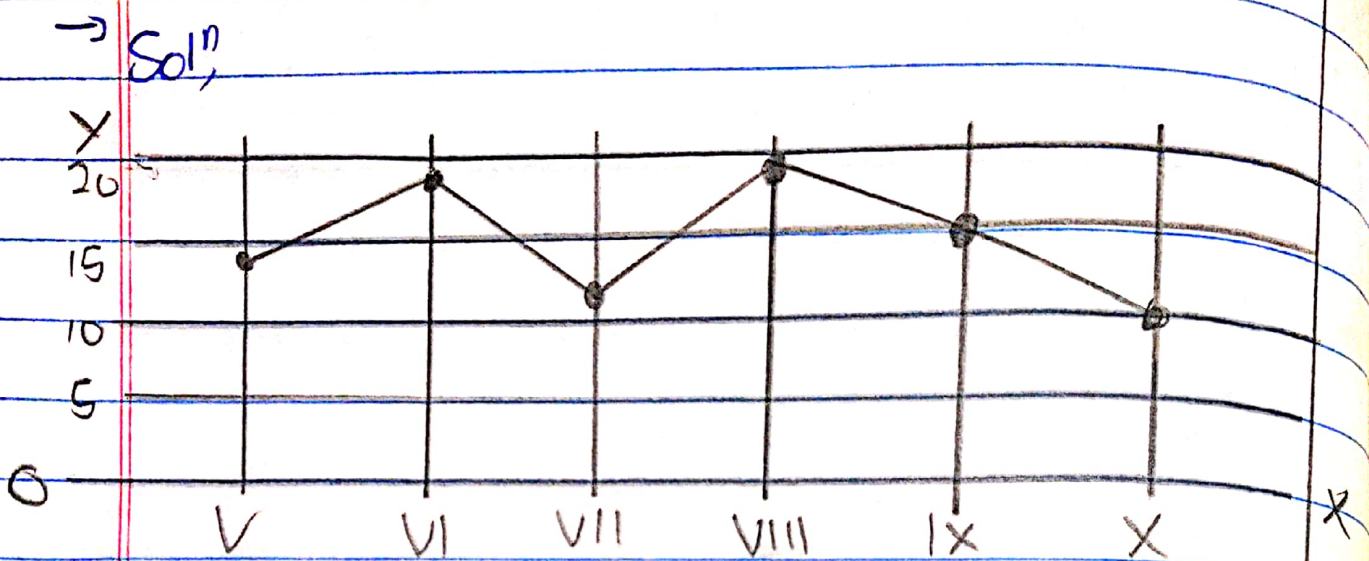
Month	May	June	July	Aug	Sept	Oct
Rainfall (mm)	5	18	25	15	12	6

→ Soln,



1(c) The no. of students in different classes of the year 2060 is given below:

Class	V	VI	VII	VIII	IX	X
No. of students	14	18	12	19	15	10



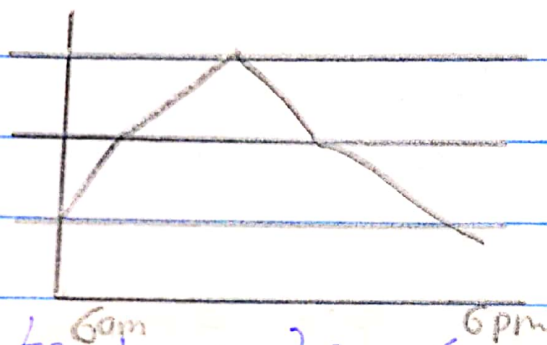
2 a) → Solⁿ Here,

(i) → 6 am

(ii) Noon

(iii) 22°C.

(iv) Increasing tendency from 6am to noon & decreasing from noon to 6PM.

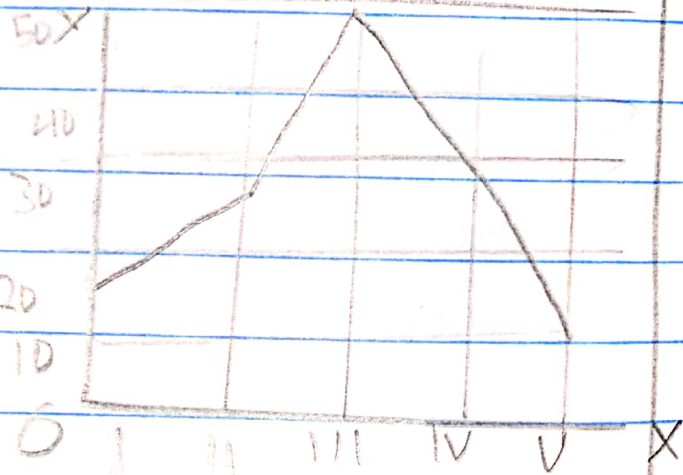


2 (b) → Solⁿ Here,

i) III year

ii) 30 thousand m. tonne

iii) No

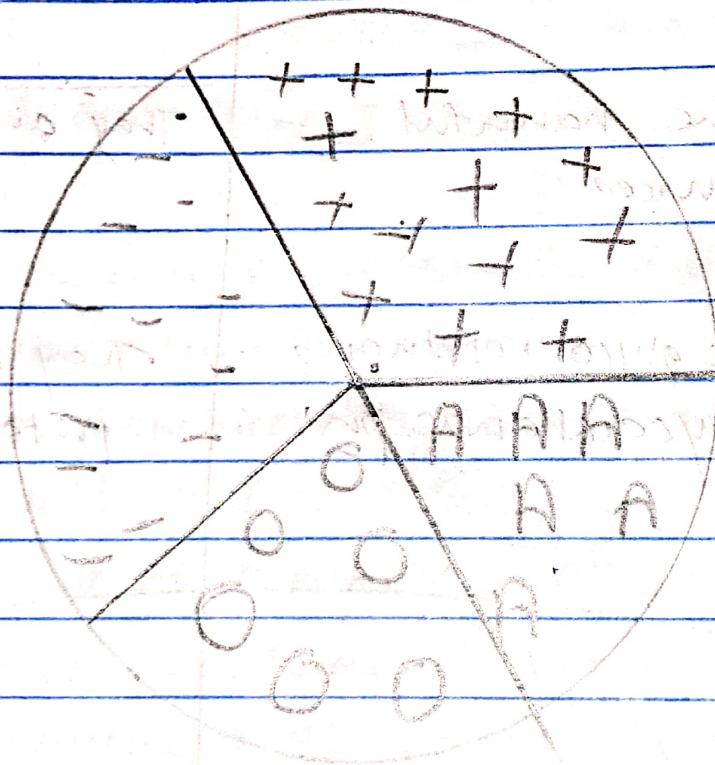


Ex-21(III)

1. a) The number of students from class V to VIII is given below:

Class	V	VI	VII	VIII
No. of students	36	30	24	18

→ Solⁿ,



Index
V = +
VI = -
VII = O
VIII = A

Total angle at centre = 360°

Total students = $36 + 30 + 24 + 18 = 108$

~~(108) Total No. of students = 360°~~

~~Students = $\frac{360}{108} = 3.33^\circ$~~

$$V = 36 \times 3.33 = 119.88$$

$$\text{Class V} = \frac{360}{108} \times 36 = 120^\circ$$

$$\text{Class VI} = \frac{360}{108} \times 30 = 100^\circ$$

$$\text{Class VII} = \frac{360}{108} \times 24 = 80^\circ$$

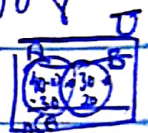
$$\text{Class VIII} = \frac{360}{108} \times 18 = 60^\circ$$

84

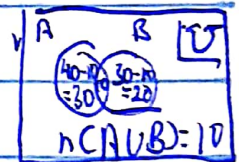
72

96

108



b) Quantities of production in ~~4th~~ 8 four different commodities of a certain year are given below.



Maize	Wheat	Potato	Total
280	240	320	1200

→ Soln

$$\text{Total} = 280 + 240 + 320 + 1200$$

$$= 2040 \text{ (let left be } x \text{). So, } x = 1200 - 940$$

$$= 360$$

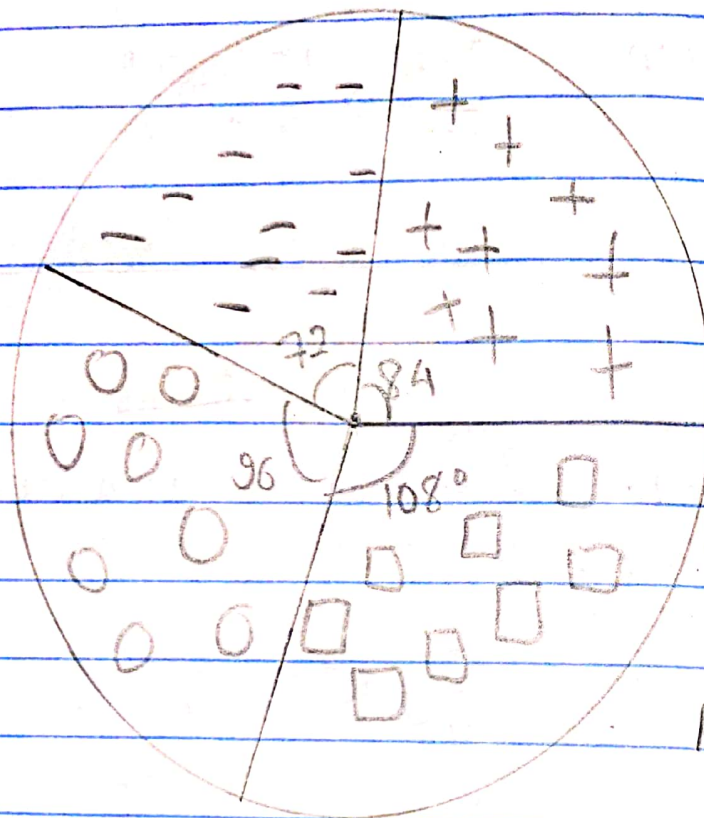
$$\text{Maize} = \frac{360}{2040} \times 280$$

$$= 84$$

$$\text{Wheat} = \frac{360}{1200} \times 240 = 72$$

$$\text{Potato} = \frac{360}{1200} \times 320 = 96$$

$$x = \frac{360}{1200} \times 360 = 108$$



Index
 Maize = +
 Wheat = -
 Potato = o
 x = □

2 (a) → Soln,

Here,

Total = 900 students

$$(i) - \text{Football} = \frac{900}{360} \times 108^\circ = 270^\circ \#$$

$$ii - \text{Basketball} = \frac{900}{360} \times 180^\circ = 150^\circ$$

$$- \text{volleyball} = \frac{900}{360} \times 90^\circ = 225^\circ$$

$$- \text{Badminton} = \frac{900}{360} \times 102^\circ = 255^\circ$$

$$(ii) \rightarrow = \text{Football} - \text{volleyball} \\ = 270 - 225 \\ = 45^\circ \#$$

$$(iii) \rightarrow = \text{Badminton} - \text{basketball} \\ = 255 - 150 = 105^\circ \#$$

2 (b) $\rightarrow$ Soln

Total no. of votes = 12600

Votes received by:

$$A = \frac{12600}{360} \times 90 = 3150$$

$$B = \frac{12600}{360} \times 45 = 1575$$

$$C = \frac{12600}{360} \times 125 = 4375$$

$$D = \frac{12600}{360} \times 100 = 3500$$

Ex-21C(IV)

1. a) The marks obtained by 5 students in given below:

59, 83, 67, 76, 90.

Find average mark.

→ Solⁿ

No. of students = 5

~~Sum of marks = 59 + 83~~

Now,

$$\text{Average mark} = \frac{59 + 83 + 67 + 76 + 90}{5}$$

$$= \frac{375}{5}$$

$$= 75 \#$$

2 (a) $\Rightarrow$ The average of 5 numbers 10, 12, 18, x and 8 is 11. Find the value of x .

$\rightarrow$ Soln

Here,

No. of numbers = 5

We know,

$$11 = \frac{10 + 12 + 18 + x + 8}{5}$$

$$\text{or, } 55 = 48 + x$$

$$\text{or, } x = 55 - 48$$

$$\therefore x = 7$$

3 (a) From following frequency table, find arithmetic mean.

x	4	6	8	10	12
f	5	6	5	2	2

$\rightarrow$ Soln

Here,

$\rightarrow$

x	f	fx
4	5	20
6	6	36
8	5	40
10	2	20
12	2	24
$N = 20$		$\Sigma fx = 140$

Now,

$$N = 20, \Sigma fx = 140$$

So,

$$\bar{x} = \frac{\Sigma fx}{N} = \frac{140}{20} = 7$$

4 a) $\rightarrow$ Soln

Here,

Average temperature of 1st 8 months = 28°C

Average temperature of last 4 months = 16°C

So we know,

$$\begin{array}{l|l} n_1 = 8 & n_2 = 4 \\ \bar{x}_1 = 28^\circ\text{C} & \bar{x}_2 = 16^\circ\text{C} \end{array}$$

So,

$$\begin{aligned}\bar{x} &= \frac{n_1 \bar{x}_1 + n_2 \bar{x}_2}{n_1 + n_2} \\ &= \frac{8 \times 28 + 4 \times 16}{8 + 4} \\ &= 24^\circ\text{C} \quad \# \end{aligned}$$

Ex-21(V)

Find median from following data:

27, 31, 56, ~~56~~ 97, 45

Soln

Here, Ascending order [27, 31, 45, 56, 97]
At $N = 5$

So,

$$\begin{aligned}(\text{Md}) \text{ Median} &= \left(\frac{n+1}{2} \right)^{\text{th}} \text{ item} \\ &= \left(\frac{5+1}{2} \right)^{\text{th}} \text{ item} \\ &= 3^{\text{rd}} \text{ item.} \end{aligned}$$

$$\therefore \text{Md} = \cancel{56} 45$$

2 (c) Find Q_1 and Q_3 from given data.

15, 58, 38, 43, 32, 22, 35
→ Soln

Here,

In ascending order = 15, 22, 32, 35, 38, 43, 58.

~~We~~ $N = 7$

Now,

$$Q_1 = \left[\frac{n+1}{4} \right]^{\text{th}} \text{ item}$$

$$= \left[\frac{7+1}{4} \right]^{\text{th}} \text{ item}$$

$$= \left[\frac{8}{4} \right]^{\text{th}} \text{ item} = 2^{\text{nd}} \text{ item} = 22 \#$$

Also

$$\begin{aligned}
 Q_3 &= \left[\frac{3(n+1)}{4} \right]^{\text{th}} \text{ item} \\
 &= \left[\frac{3(7+1)}{4} \right]^{\text{th}} \text{ item} \\
 &= \left[\frac{3 \times 8}{4} \right]^{\text{th}} \text{ item} \\
 &= 6^{\text{th}} \text{ item} \\
 &= 43 \neq
 \end{aligned}$$

3(a) → Find median mark from the table:

Marks	30	40	50	60	70
No. of students	8	12	25	15	7

→ Soln

Marks (x)	No. of students (f)	c.f
30	8	8
40	12	8+12=20
50	25	20+25=45
60	15	45+15=60
70	7	60+7=67

Here, $N = 67$

$$\frac{n+1}{2} = \frac{67+1}{2} = 34.$$

Md = 50

Since value greater than 34 is 45 in c.f so Md = 50

4.a) Find Q_1 and Q_3 :

x	15	20	25	30	35
f	10	13	16	8	4

→ Soln,

x	f	c.f
15	10	10
20	13	23
25	16	39
30	8	47
35	4	51

Here,

$$N = 51$$

$$\frac{N+1}{4} = \frac{51+1}{4} = 13$$

$$\frac{3(N+1)}{4} = 3 \times 13 = 39$$

Q_1 = value of 13th item

∴ In c.f table value greater than 13 is 23

∴ $Q_1 = 20$.

Q_3 = value of 39th item

∴ In c.f table 39th value is corresponding to 25. ∴ $Q_3 = 25$.

5. Find mode of from the data;

a) 5, 4, 5, 2, 5, 3, 4, 5

→ Soln,

~~arr~~ In ascending order,

2, 3, 4, 4, 5, 5, 5, 5

Since, 5 is repeated 4 times i.e. maximum times, $\therefore$ mode = 5.

6. a) Find modal size of shoe.

Size : 4 5 6 7 8
No. of persons: 18 16 27 40 20

→ Soln,

Size	Tally mark	No. of people Frequency
4		18
5		16
6		27
7		40
8		20

Since 40 is highest frequency, ~~it is the modal~~ size. 7 is mode

8. Find the range:

a) 45, 77, 80, 35, 63, 20

→ Soln

Here,

$$\text{Largest } [L] = 80$$

$$\text{Smallest } (S) = 20$$

$$\therefore \text{Range} = L - S = 80 - 20 = 60.$$

9. a) Marks obtained by 40 students is given
Find range.

Marks	15	25	35	45	55
No. of students	8	10	15	4	3

→ Soln

$$\text{Largest } [L] = 55$$

$$\text{Smallest } [S] = 15$$

$$\therefore \text{Range} = L - S = 55 - 15 = 40 \#$$

→

10. a) Marks obtained by 10 students:
66, 98, 87, 43, 78, 82, 47, 92, 56,
83

- i) $\rightarrow$ The highest mark is 98 marks.
 - ii) $\rightarrow$ The lowest mark is 43 marks.
 - iii) $\rightarrow$ Range = $98 - 43 = 55$ #
-